

ASSIGNMENT 1

Textbook Assignment: "Surface Observation Elements", chapter 1, pages 1-1 through 1-34.

- 1-1. What publication is the most comprehensive manual for U.S. Navy shipboard surface aviation weather observations?
1. NAVMETOCCOMINST 3144.1
 2. NAVMETOCCOMINST 3141.2
 3. FMH-1
 4. FMH-2
- 1-2. What is the freezing point of water on the Kelvin temperature scale?
1. 273.16°K
 2. 100.16°K
 3. 32.00°K
 4. 0.00°K
- 1-3. What is the standard time zone designation for the east coast of the United States?
1. -4
 2. -5
 3. +4
 4. +5
- 1-4. If the Coordinated Universal Time is 1200Z, what is the local standard time in zone "W"?
1. 0200 next day
 2. 0200 same day
 3. 2200 next day
 4. 2200 same day
- 1-5. What two days mark the beginning and end, respectively, of daylight savings time in the United States?
1. Last Sunday in October, and first Sunday in April
 2. First Sunday in October, and last Sunday in April
 3. First Sunday in April, and last Sunday in October
 4. Last Sunday in April, and first Sunday in October
- 1-6. To prevent confusion on meteorological records, which of the following time formats should be used?
1. 1:10 PM
 2. 1310 EST
 3. 1310 L
 4. 1310 UTC
- 1-7. Which of the following statements best defines the term state-of-the-sky?
1. Code numbers that equate only to types of clouds recognized by the United States
 2. Code numbers that equate to internationally recognized sky states
 3. Code numbers for the lowest broken or overcast layer of clouds
 4. Code numbers for the description of the lowest cloud layer
- 1-8. Cumuliform clouds are generally associated with what type of air?
1. Dry and stable
 2. Moist and stable
 3. Dry and unstable
 4. Moist and unstable

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| A. OROGRAPHIC
B. FRONTAL
C. CONVECTIVE
D. TURBULENT |
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Figure 1-A

IN ANSWERING QUESTIONS 1-9 THROUGH 1-12, SELECT THE TYPE OF LIFT FROM FIGURE 1-A THAT MATCHES THE DESCRIPTION GIVEN. RESPONSES ARE USED ONLY ONCE.

1-9. Lift caused by air density differences between air masses along frontal zones.

1. A
2. B
3. C
4. D

1-10. Lift caused by friction between adjacent layers.

1. A
2. B
3. C
4. D

1-11. Lift caused by features on the earth's surface, such as mountains.

1. A
2. B
3. C
4. D

1-12. Lift caused by heating near the earth's surface.

1. A
2. B
3. C
4. D

1-13. In the middle latitudes, the top of the mid-etage is considered to extend to what altitude?

1. 6,500 ft
2. 10,000 ft
3. 18,500 ft
4. 23,000 ft

1-14. Of the following cloud genera or genus, which one is found in the low-etage?

1. Cirrus
2. Altocumulus
3. Cumulus
4. Cirrocumulus

1-15. What WMO classification identifies the size, shape, or form of the elements within a cloud layer?

1. Genera or genus
2. Species
3. Variety
4. Etage

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| A. TARNSLUCIDUS
B. DUPLICATUS
C. UNDULATUS
D. RADIATUS |
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Figure 1-B

IN ANSWERING QUESTIONS 1-16 THROUGH 1-19, SELECT THE CLOUD VARIETY IN FIGURE 1-B THAT MATCHES THE DESCRIPTION GIVEN. RESPONSES ARE USED ONLY ONCE.

1-16. Variety used to identify overlapping layers of cloud.

1. A
2. B
3. C
4. D

1-17. Variety used to identify a pattern known as "Abraham's Tree."

1. A
2. B
3. C
4. D

1-18. Variety that identifies a condition that will allow the outline of the sun or moon to be seen.

1. A
2. B
3. C
4. D

1-19. Variety that identifies a pattern called "wind-row" or "wave clouds."

1. A
2. B
3. C
4. D

1-20. Which of the following terms is correctly used to further identify a cirrus cloud when the cloud fibers are entangled or crossing one another?

1. Opaqus
2. Lacunosus
3. Intortus
4. Vertebratus

1-21. Of the following supplementary features, which one is another name for waterspouts and tornadoes?

1. Virga
2. Arcus
3. Incus
4. Tuba

1-22. Moderately developed cumulus clouds may produce precipitation.

1. True
2. False

1-23. Which of the following descriptions is associated with virga?

1. A dark, fuzzy area immediately below the base of a cumulus cloud
2. A dark, fuzzy area caused by precipitation that decreases in intensity below the cloud
3. A rain shower that evaporates before reaching the surface
4. Each of the above

1-24. What cloud in the genus cumulus is described as having several layers of cauliflower-like buildups?

1. Cumulus humilis
2. Cumulus mediocris
3. Cumulus congestus
4. Comulonimbus

1-25. The towering cumulus cloud is a special form of which of the following cloud species?

1. Cumulus congestus
2. Cumulus mediocris
3. Cumulonimbus capillatus
4. Comulonimbus calvus

1-26. In the mid-latitudes, cirrus blowoff from a cumulonimbus anvil top will occur most commonly at a maximum of how many feet?

1. 20,000
2. 25,000
3. 30,000
4. 45,000

- 1-27. Which of the following is an identifying feature of a cumulonimbus calvus?
1. A dark gray base
 2. An anvil top
 3. Thunder
 4. Lightning
- 1-28. Which of the following statements is true regarding cumulonimbus mamma?
1. A strong indicator that funnel clouds are present
 2. A strong indicator that conditions are favorable for severe weather
 3. Consists of many rounded bulges from the top of dense cirrus blowoff
 4. Consists of many rounded bulges from the base of thin cirrus blowoff
- 1-29. Of the following meteorological phenomena, which one is associated with an outflow boundary?
1. The funnel cloud
 2. Virga
 3. Mamma
 4. Low-level wind shear
- 1-30. Roll clouds indicate that thunderstorm down-rush has occurred and that LLWS may be present.
1. True
 2. False
- 1-31. A slowing rotating wall cloud indicates the possible development of what condition?
1. Funnel cloud
 2. Cold air funnel
 3. Dust cloud
 4. Microburst
- 1-32. Ships should always avoid contact with waterspouts.
1. True
 2. False
- 1-33. In relation to the cumulonimbus cloud, where can hail be found?
1. The top and sides of building and mature CB cells
 2. Up to 25 miles from the CB cell
 3. Under the cloud base
 4. All of the above locations
- 1-34. What cloud genera is sometimes mistaken for altocumulus?
1. Cumulus
 2. Stratocumulus
 3. Cirrostratus
 4. Stratus
- 1-35. What is the most common type of precipitation produced by stratocumulus clouds?
1. Snow flurries
 2. Light rain showers or drizzle
 3. Heavy rain showers
 4. Sleet
- 1-36. Which of the following is a feature of a stratus cloud?
1. Regular dark patches on the cloud base
 2. A very smooth and uniform base
 3. Easily recognized cloud cells
 4. Virga
- 1-37. What type of cloud layer may display the outline of the sun as blurred or fuzzy?
1. Stratus
 2. Stratus opaquus
 3. Altostratus
 4. Altocumulus

- 1-38. Of the following conditions, which one may produce a corona?
1. Ice crystals in a low-etae cloud
 2. Ice crystals in a mid-etae cloud
 3. Liquid water droplets in a low-etae cloud
 4. Liquid water droplets in a mid-etae cloud
- 1-39. If a halo is seen in a stratiform cloud, which of the following cloud genera is most likely present?
1. Stratus
 2. Altostratus
 3. Cirrostratus
 4. Each of the above
- 1-40. Which of the following indicators may be used to reclassify altostratus clouds as nimbostratus?
1. The cloud base lowers to less than 6,500 ft
 2. Stratus fractus clouds form under an altostratus base
 3. Precipitation begins
 4. All of the above

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| A. ALTOCUMULUS STRATIFORMUS
B. ALTOCUMULUS FLOCCUS
C. ALTOCUMULUS CASTELLANUS
D. ALTOCUMULUS LENTICULARIS |
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Figures 1-C

IN ANSWERING QUESTIONS 1-41 THROUGH 1-44, REFER TO FIGURE 1-C. SELECT THE ALTOCUMULUS SPECIES THAT MATCHES THE DESCRIPTION GIVEN. RESPONSES ARE USED ONLY ONCE.

- 1-41. The species that is an orographic cloud form.
1. A
 2. B
 3. C
 4. D
- 1-42. The species that resembles small ragged, cumulus humilis clouds.
1. A
 2. B
 3. C
 4. D
- 1-43. The species with towers or turrets extending upward from the cloud base.
1. A
 2. B
 3. C
 4. D
- 1-44. The most comon species of altocumulus cloud.
1. A
 2. B
 3. C
 4. D
- 1-45. The dense blowoff from the top of a cumulonimbus, often referred to as dense cirrus, is what cloud species?
1. Cirrus spissatus
 2. Cirrus floccus
 3. Cirrus uncinus
 4. Cirrus castellanus

1-46. What cloud type appears as a thin veil over the sky without any distinguishable features?

1. Cirrostratus fibratus
2. Cirrostratus nebulosus
3. Altostratus
4. Altocumulus

1-47. Which of the following is an important indicator that a cumuliform cloud belongs to the genera cirrocumulus?

1. The cloud layers are arranged in loosely packed rows
2. Each element is smaller than 1° of the sky
3. The small cells cover a large portion of the sky
4. The cloud elements are unlike high altocumulus clouds

1-48. Which of the following statements about orographic clouds is NOT true?

1. Orographic clouds are generally stationary
2. Orographic clouds are never associated with dangerous turbulence
3. Orographic clouds form when strong winds blow across mountain ranges
4. There are three significant orographic cloud forms

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| <ol style="list-style-type: none">A. LENTICULARISB. FOEHNWALLC. ROTORD. MOUNTAIN WAVE |
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IN ANSWERING QUESTIONS 1-49 THROUGH 1-52, REFER TO FIGURE 1-D. SELECT THE TERM THAT MATCHES THE DESCRIPTION GIVEN. RESPONSES ARE USED ONLY ONCE.

1-49. Not a cloud type, but a name for the condition that produces certain orographic clouds.

1. A
2. B
3. C
4. D

1-50. An orographic cloud that is cap-shaped and forms downwind from a mountain range.

1. A
2. B
3. C
4. D

1-51. An orographic cloud that is cap-shaped and forms on a mountain top.

1. A
2. B
3. C
4. D

1-52. An orographic cloud that is cat-eye shaped, with a windswept appearance.

1. A
2. B
3. C
4. D

Figure 1-D

- 1-53. Of the following descriptions, which one best describes cloud layer coverage?
1. An estimate of the total amount of clouds present in the sky
 2. An estimate of the total amount of clouds at generally the same level in the sky
 3. An estimate of the total amount of a particular cloud genus
 4. An estimate of the total amount of a particular cloud species
- 1-54. When observing layer coverage, a partial obscuration hiding less than 1/8 of the sky may be ignored.
1. True
 2. False
- 1-55. Of the following statements, which one is correct when you evaluate an area or patch of cloud for layer coverage?
1. Layer coverage includes opaque portions of the cloud, transparent portions of the cloud, and small areas of blue sky between individual cloud cells
 2. Layer coverage includes opaque portions of the cloud and transparent portions of the cloud only
 3. Layer coverage includes only opaque portions of a cloud
- 1-56. Which of the following evaluations is a concept used to determine cloud ceiling?
1. Total sky cover
 2. Layer coverage
 3. Summation sky coverage
 4. Each of the above

- 1-57. When 4/8 of the sky is covered by clouds in a single layer, what is the layer classified?
1. Few
 2. Scattered
 3. Broken
 4. Overcast

Three layers of clouds are present in the sky as follows:

Lower layer:	Total 2/8
Middle layer:	Total 3/8
Higher layer:	Total 3/8

Figure 1-E

IN ANSWERING QUESTIONS 1-58 AND 1-59, REFER TO FIGURE 1-E.

- 1-58. What is the correct summation coverage for the higher layer?
1. Few
 2. Scattered
 3. Broken
 4. Overcast
- 1-59. Which of the following layers, if any, constitutes a ceiling?
1. The low layer
 2. The middle layer
 3. The higher layer
 4. None of the above
- 1-60. If the base of a layer of clouds is measured at 9,750 feet above the ground, what is the correct reportable cloud height?
1. 10,000 ft
 2. 9,950 ft
 3. 9,900 ft
 4. 9,500 ft

1-61. The greatest distance that objects may be seen and identified throughout half or more of the horizon circle is what type of visibility?

1. Sector
2. Variable
3. Differing level
4. Prevailing

1-62. Which of the following terms is most closely associated with how far a pilot can see at the moment the aircraft lands?

1. Sector visibility
2. Prevailing visibility
3. Tower visibility
4. Runway visual range

A. HAZE
B. SMOKE
C. DUST
D. SAND

Figure 1-F

IN ANSWERING QUESTIONS 1-63 THROUGH 1-66, REFER TO FIGURE 1-F. SELECT THE LITHOMETEOR THAT MATCHES THE DESCRIPTION GIVEN. RESPONSES ARE USED ONLY ONCE.

1-63. Gives distance objects or the sky a tan hue, even when the relative humidity is low.

1. A
2. B
3. C
4. D

1-64. Gives distant objects a blue hue when viewed against dark backgrounds, or gives the sky a yellow tinge.

1. A
2. B
3. C
4. D

1-65. Hazardous to aircraft and is normally only present in the atmosphere when winds are 21 knots or higher and conditions are dry.

1. A
2. B
3. C
4. D

1-66. When dispersed in the atmosphere, gives the air a red tinge, especially at sunrise and sunset.

1. A
2. B
3. C
4. D

A. FOG
B. MIST
C. GROUND FOG
D. SHALLOW FOG

Figure 1-G

IN ANSWERING QUESTIONS 1-67 THROUGH 1-70, SELECT THE HYDROMETEOR IN FIGURE 1-G THAT MATCHES THE DESCRIPTION GIVEN. RESPONSES ARE USED ONLY ONCE.

1-67. Used to identify suspended liquid water droplets that reduce prevailing visibility from 1,000 meters to 9,000 meters.

1. A
2. B
3. C
4. D

1-68. Reduces visibility only within 20 feet of the ground to less than 5/8 mile.

1. A
2. B
3. C
4. D

1-69. Deeper than 20 feet and reduces prevailing visibility to less than 5/8 mile.

1. A
2. B
3. C
4. D

1-70. By definition does NOT restrict prevailing visibility.

1. A
2. B
3. C
4. D

1-71. The fact that precipitation is either liquid, freezing, or frozen is related to what precipitation classification?

1. Character
2. Type
3. Form
4. Intensity

1-72. Which precipitation type is identified by white, opaque, rounded or conical kernels of frozen water that occur(s) as showers?

1. Snow
2. Snow pellets
3. Snow grains
4. Ice pellets

1-73. Which of the following precipitation types is/are produced exclusively in thunderstorms?

1. Hail
2. Ice crystals
3. Snow grains
4. Ice pellets

1-74. Which of the following indicators is/are used as a guide for precipitation intensity?

1. Rate of accumulation
2. Visibility
3. Spray appearance over hard surfaces
4. All of the above

1-75. What are the differences in precipitation character between showery precipitation and intermittent precipitation?

1. Showery precipitation falls from cumuliform clouds and changes intensity more abruptly than intermittent precipitation
2. Showery precipitation falls from stratiform clouds and changes intensity more abruptly than intermittent precipitation
3. Shower precipitation falls from cumuliform clouds and changes intensity more gradually than intermittent precipitation
4. Showery precipitation falls from stratiform clouds and changes intensity more gradually than intermittent precipitation